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AVIATION AND AIRCRAFT JOURNAL



The Curtiss Navy Racer on which Bert Acosta Won the Second Pulitzer Race.

VOLUME XI

Number 20

SPECIAL FEATURES

AIR STRENGTH OF THE GREAT POWERS
THE FLYING MEETS AT KANSAS CITY AND OMAHA
THE ORENCO "TOURISTER II"
"WHO'S WHO IN AMERICAN AERONAUTICS"
EFFECT OF LOW GRADE GASOLINE ON ENGINES

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We Must Realize



-- that aviation will eventually become the standard and bearer of quick transportation

-- that in the modernizing of our present systems of transportation and in meeting competition, aircraft will be a predominating feature

-- that there is a very definite possibility of using aircraft in the solving of our transportation difficulties.

Permit us to study your transportation problems. Probably your business is one that might profit by the use of aircraft.

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"The birthplace of the airplane"

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IF YOU MISSED IT LAST WEEK HERE IT IS AGAIN

FACTS ON FLYING BOAT TRANSPORTATION

First Annual Report of Commercial Aviation Operations ever made in the United States compiled by the Aeronautic Airways for the Bureau of Aeronautics, Navy Department, Washington, D. C. For the Year ending October 27th, 1921.

From: AEROMARINE AIRWAYS, Inc.
also Times Ship, New York City

To: ADMIRAL W. A. HOFFMANN,
Director of Naval Aeronautics,
Navy Building,
Washington, D. C.

Subject: First Annual Report of Commercial Flying Operations.

TOTALS	
Passengers carried	6,614
Miles flown	55,020
Accidents	NIL
Mail and freight lbs.	29,002

The operations of the Aeronautic Navy Flying boats in the commercial transportation of passengers, mail and freight for the period commencing October 19, 1920 and ending October 27, 1921, is herewith submitted.

1. Six eleven-passenger Navy Flying boats of P-11 type in operation carried 1,644 passengers 42,880 miles in the air and transported 24,802 lbs. of mail and 5,000 lbs. of freight and baggage, exclusive of crew.
2. Six Navy Coast Patrol five-passenger Flying boats of P-5 type carried 4,780 passengers 14,270 miles in the air, exclusive of crew.
3. Three Aeronautic Navy three-passenger Flying boats carried 1,800 passengers 16,300 miles, exclusive of pilots.
4. Not a single passenger or employee was injured during these operations. The schedule was maintained throughout with the exception of four forced landings during adverse weather conditions which caused only slight delays. These delays were due to light winds or slight overcast. The Flying boat "ALBATROSS" was very strong in its message this night as Harvey Barker during a terrific gale, showed against some rocks and damaged beyond repair. He was not aboard at the time.
5. The services maintained include Key West - Havana; Florida - Bahamas Islands; New York - Atlantic City and New England ports; New York Light House; New York - Albany; Coast Patrol region; Mississippi River Valley.

SUMMARY

The eleven-passenger Navy P-11 Flying boats operated on the Key West - Havana service during the Winter months, after which two of these were sent up for the summer. The remaining boat, "ALBATROSS" then undertook a flight from Key West up the Atlantic Coast to New York, up the Hudson River, over Lake George and Champlain to Montreal, along the Great Lakes to Chicago and thence by way of the Illinois and Mississippi Rivers to New Orleans, thence along the Gulf to Key West, a total distance of 7,000 miles.

Of the six P-11 Flying boats, four were in constant operation and two were in reserve. One of these boats made a complete circumnavigation of the Coast Lakes flying 7,400 miles and carrying 200 passengers; another covered the New England States.

For operations during the coming year six of the Aeronautic Navy eleven-passenger Flying boats will be placed in operation on the Key West-Havana route and between Palm Beach and Miami and Miami and Havana; two other Navy craft of the same type will be held in reserve for special seasonal parties.

For the other services, seven of the five-passenger Aeronautic Navy P-5 type will be placed in active operation and two others will be held in reserve for special charters.

Three of the Aeronautic Navy three-passenger Flying boats will be used for special services, and special charters, with two of these same types held in reserve.

Very truly yours,
AEROMARINE AIRWAYS, Inc.,
(Incorporated in New York)
President.

The Aeronautic Airways is today the largest Aerial Transportation Company in the world operating flying boats exclusively.

The experience gained in the successful operation of aircraft for commercial purposes, representing an investment of many hundreds of thousands of dollars, is furnished to purchasers of Aeronautic Flying Boats. There is no other Aerial Transportation Company in North America that has this information available.

There are many cities that can use Aeronautic Flying Boats for the outfitting of Airways. We have a limited number of new Aeronautic Navy Flying Boats for sale and are accepting orders for spring delivery. Write for catalog and dealer's proposition.

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NEW PRODUCTION

'ORIOLE'		List Price	
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With K-6 Motor (1919)		\$4400.00	" " "
With C-6 Motor (1920) and large variants		\$4800.00	" " "
'SEAGULL'			
1919 K-6 Motor, dual stick control		\$5200.00	" Garden City, L. I.
1920 C-6 Motor, dual stick control and balanced ailerons		\$5600.00	" " "
'STANDARD'			
With C-6 or K-6 Motor		\$3600.00	" " "
'MOTORS'			
C-6 or K-6 (150 H.P.)		\$3000.00	" Buffalo, New York

GOVERNMENT TRAINING PLANES

'JN'S'			
JN4D with new OX5 Motor		\$2400.00	F. O. B. Dallas, Texas
JN4A, B, C & D used, with overhauled OX5 Motor		\$1200 to \$2200.00	" " "
'STANDARDS'			
With new OX5 Motor		\$2000.00	" Houston, Texas
With overhauled OX5 motor		\$1700.00	" " "
Without motor, rebuilt for OX5		\$1100.00	" " "
Without motor, rebuilt for K-6 or C-6		\$1600.00	" Garden City, L. I.
Without motor, as received from Government		\$800.00	" Houston, Texas
'MOTORS'			
OX5 New		\$800.00	" Various construction fields
OX5 Overhauled		\$600.00	" " "
OX5 As received from Govt		\$500.00	" " "

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GARDEN CITY



LONG ISLAND

AVIATION AND AIRCRAFT JOURNAL

VOL. XI, NO. 20

Member of the Audit Bureau of Circulations

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AVIATION AND AIRCRAFT JOURNAL

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Vol. XI

November 14, 1931

No. 26

The Growing Importance of Air Power

The conference on the limitation of armaments may newspapers and magazines are publishing composite articles setting forth the relative air and naval strength of the principal powers. It is common to note that in these comparisons air strength does not figure at all. Whether this omission is due to ignorance of the subject, or to difficulties encountered in gathering the requisite information, or to the popular conception that the aerial arm is nothing but a branch of the armies and navies of the world—all this is immaterial so against the one outstanding point that the American public is not being informed about the relative standing of the world's air forces.

When it is realized that the country which has a preponderance of air power at the start of hostilities possesses the element with which it can strike at the enemy far in advance of the latter, and with unparalleled suddenness, the importance of recognizing the air power of the various nations will be better appreciated. An aerial surprise attack assumes with every month that passes by an increasing probability, for momentous progress continually advances in the path of achieving success with more speed and carrying capacity. Even the time will come when even the splendid isolation which the Atlantic and the Pacific now afford to America will be a thing of the past.

It is with this vision of the near future that AVIATION AND AIRCRAFT JOURNAL presents to its readers in this issue a new platform of the fighting strength and organization of the chief air powers of the world. Despite the considerable work involved in gathering this material, the compilation is undoubtedly incomplete, but such as it is it will enable our readers to form a clearer picture of the nations' air strength than was heretofore available.

The Second Pulitzer Trophy Race

THE second annual competition for the Pulitzer Trophy is to have the occasion of a magnificent demonstration of the terrific power of American plane, airplane and motor engines. The speed of 370.3 m.p.h. made by the Vance, Bert Acosta, on the Curtiss-Wright racer, beats any previous similar performance made here or abroad in competition.

While the winning machine represents a new design, it is well worth noting that the Curtiss "Curtiss-Kitter" flown by Clarence Condit, which was built for the 1928 Gordon Bennett race, finished second at 339 m.p.h., or at an average speed as close to that made by the winner of the last Gordon Bennett race, finished second at 339 m.p.h., or at an average speed as close to that made by the winner of the last Gordon Bennett race. It is considered that this machine, originally designed as a reconnaissance, was going to have wings to allow down to landing speed, and that this also reduced its high speed, it becomes obvious that the "Curtiss-Kitter" was at the time it was built the fastest machine in the world—or the Curtiss engineers intended it to be.

Wanted—An American Sailing Competition

THE remarkable results which the annual German sailing competition achieved, and the even more remarkable performance German sailing from accomplished state the contest have found a vigorous echo in the neighboring French Republic. France, which today has achieved undoubted supremacy in both military and naval armaments, could not remain indifferent to this new branch of human flight which, its advocates believe, will bring about a reduction in the vastness of power required for keeping battle-ship-arms in the air. Hence it is not surprising to learn that at the end of this month there will occur in Paris a Coupe de Météorisme flight which will attempt to reduce the problem of sailing flight to minimum terms, an outgrowth of a French sailing contest to be held next summer.

The importance French aeronautical circles attach to this convention may be seen from the fact that it will be held under the auspices of the French air minister, and that its patronage will be well known to aviation as M. de la Motte, Brignot, Arthaud and Marché.

Then the country of Moulins receives the challenge of Le Mans' country. Such being the case, the question occurs as to what contribution Langley's country is going to make to this latest branch of aeronautics? It will come as a surprise to many people to see Langley's name mentioned in connection with sailing flight. Yet, his name is as well known to students of sailing flight as those of Moulins and of Le Mans, for his discovery of the "airfoil" form of the wing, that is, the principle of air which is believed to create within a given air stream, appears to afford the key to the whole problem of sailing motion.

It should be well understood that sailing is absolutely distinct from gliding. In a gliding flight the machine starts from an elevation and covers a greater or lesser distance according to the strength of the ascending air currents, but being outside all the time. In a true sailing flight an ascending current is required; that is, the German experiment, in his 21-minute flight, maneuvered all the time over an ascending plane, where the possibility of rising currents was precluded, merely striking a strong gusty wind. He flew both against and with the wind without losing altitude, he climbed some 400 ft. during his flight, and when he landed he was only 4 ft. below his starting point.

This point having been made clear it appears necessary to emphasize that for America to be established in this new art, preparations should at once be made to build both a convention of machine flight and a sailing competition. First, of course, is a splendid opportunity for the Aero Club of America to take the lead, on as deep of old, and galvanize American engineers and manufacturers into channels which will lead on a new path in the conquest of the air.



On Its Metal

"BUILD LIKE A YACHT" once was a common saying to express highest praise for fine workmanship. All men know that the ship builder was called upon to make people better than the carpenter, finish wood finer than the cabinet maker, and forge metal with more skill than the blacksmith.

Asplines call for all this and more. The Glenn L. Martin Company have found it necessary to organize special departments, construct special tools and train picked men in order to insure the perfection of work which has to go into The Glenn L. Martin Bomber. In the photograph shown, trained mechanics assemble and complete the smaller metal parts. The Inspection Department allows no margin of error—each part, no matter how small, must comply exactly with the engineering drawing, and each must fit with absolute accuracy in its respective place.

It is the faithful application of these methods which makes The Glenn L. Martin Bomber the acknowledged superior war plane of America.

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Air Strength of the Great Powers

In connection with the conference on the limitation of armaments which has convened in Washington, D. C., *AVIATION* has assembled Japanese, British and French a comparison of the fighting strength of the principal air forces of the world, namely, the United States, France, and Great Britain. With regard to Italy and Japan the information on hand is unfortunately of the smallest nature. Italy described at the signing of the peace treaties the greater portion of its fighting air services, as did they more recently from a news item. This is new news, respectively, but the fact that the Italian air establishment will number less than 100 for the time—has definitely settled as yet. As to Japan, the fighting air services of that country are still in the formative stage, French air officers treating the army air service, while British air officers are organizing the naval air service.

No attempt has been made to work out a comparison of the relative strength and efficiency of the air forces listed below, the main reason being that no "index value" has yet been devised to compare fighting strength of the different classes. One power's machine may have a greater horizontal speed than another, but climb at a lower rate of speed, or speed, or bombardment machine may carry a greater load of bombs than another but have a lower speed and so on. If, furthermore, attention is paid to various design features such as safety factor, landing speed, etc., all of which seem to defy their being compared into a formula—the extreme difficulty of establishing an adequate comparison between fighting air services will become apparent.

The general content of comparison of the relative strength of the air services of the United States, France, and Great Britain is affected by their constantly increasing stockpiles of aircraft, and not even applicable to military strength, except perhaps temporarily. In the case of the latter the displacement, or capacity, may be taken as a criterion of their fighting efficiency, for the newer and the larger a military airplane the more will it be likely to embody improved means of defense and offense. The age plays of course an important role in a comparison of military airplanes, but this does not seem to exert any single factor in favoring one air

craft which affords means for suitable comparison like the displacement of air ships.

The only possible comparison of fighting air services is one which is based on the number of service squadrons, but even this will be fairly correct only if the squadrons are ordered all have the same strength—which is not always the case. While the American and French aviation squadrons consist of twelve airplanes, the British R.A.F. squadrons are composed of eighteen airplanes, so that a comparison between American and British air strength which is purely based on the number of squadrons of airplanes will be correct only if the British figures are increased by 50 per cent. This is merely mentioned to show some of the lesser difficulties that have to be solved in working out a comparison between fighting air services.

Another point which complicates any such comparison is that where naval air services exist independently of the army air services, such as in this country and in France, it is not so simple to obtain accurate figures regarding the fighting strength of the naval air service in question. This condition applies even if the total number of service airplanes in question were known, and it is due to the fact that a winging air service follows the usual custom of having a "float" aircraft out of which formations are temporarily raised, whereas in army air service has permanent air formations, like the corresponding units in the other branches of the army.

In this respect it should be noted that whereas the air strength of Great Britain listed below is that of the Royal Air Force, which includes both army and naval formations, is the case of the United States and France the naval air strength is not included for want of precise information.

Aircraft are not included in this compilation, as the lighter-than-air services of France and Italy are presently discredited, and even only as training formations, while the Royal Air Force has entirely discontinued the operation of balloons. In the United States both the Army and the Navy operate balloons.

United States

U. S. Army Air Service

Fighting strength—11 aviation squadrons.
11 balloon squadrons.

Personnel. The personnel strength of the U. S. Army Air Service is fixed by the War Department, Act, 1920, at one Major General (the Chief of Air Service), one Brigadier General (the Assistant Chief of Air Service), 1,534 officers ranking from Colonel to Second Lieutenant, and 50,000 enlisted men. In the latter number are included 3,500 U. S. military aviators.

The present personnel strength of the Army Air Service is, however, owing to understatement appropriations far below the figures provided for in the Act of 1920. On Sept. 17, 1925, the personnel of the Army Air Service comprised 353 officers, 7,360 enlisted men and 184 flying cadets, or a total of 8,033.

Organization. The tactical unit of the aviation arm is the squadron, which consists of a permanent headquarters and two flights of six airplanes each. The personnel of a squadron varies at all times through between 165 and 172 officers and men.

There are three squadrons formed as Aviation Group, and a sole lone provisionally only, these are active groups form a Wing. The tactical unit of the balloon and airship arm is the company. Two balloon companies and two airship companies form a Balloon Group. The personnel of a balloon or airship company consists of 120 officers and enlisted men.

Station of American Air Force

(U. S. Army Air Service)

Office, Chief of Air Service, Washington, D. C.

WINGS

1st Wing—Hdq at Ellington Field, Houston, Tex. Functions as a headquarters only and does not contain any organizations.

AVIATION GROUPS

1st Group (Parent) Hdq at Ellington Field, Houston, Tex.

17th Sq. (P) Kelly Field, Tex.
25th Sq. (P) Kelly Field, Tex.
34th Sq. (P) Kelly Field, Tex.
40th Sq. (P) Kelly Field, Tex.

2d Group (Parent) Hdq at Kelly Field, San Antonio, Tex.

17th Sq. (P) Kelly Field, Tex.
25th Sq. (P) Kelly Field, Tex.
34th Sq. (P) Kelly Field, Tex.
40th Sq. (P) Kelly Field, Tex.

3d Group (Parent) Hdq at Kelly Field, San Antonio, Tex.

17th Sq. (P) Kelly Field, Tex.
25th Sq. (P) Kelly Field, Tex.
34th Sq. (P) Kelly Field, Tex.
40th Sq. (P) Kelly Field, Tex.

4th Group (Parent) Hdq at Miami, Fla.

17th Sq. (P) Kelly Field, Tex.
25th Sq. (P) Kelly Field, Tex.
34th Sq. (P) Kelly Field, Tex.
40th Sq. (P) Kelly Field, Tex.

5th Co. No. 27
Air Park No. 11
1st Group (Observation) Hdq at Lake Field, Pearl Harbor, H. T.

4th Sq. (O) Lake Field, H. T.
5th Sq. (P) Lake Field, H. T.
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No. 5 Chicago Field, Ill.
No. 6 Clark Field, P. I.
No. 7 Hahnemann Field, Ky.
No. 8 Miami Field, N. Y.
No. 9 Riker, Kans.
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Long Island A.E.D., U. S. Aeronaustical Engine Plant, Long Island City, N. Y.
 Temporary Storage Depots
 Amelia, Fla. (Lake Field)
 Bellingham, B.C. (Scott Field)
 Haines, Tex. (Love Field)
 Houston, Tex.
 Miami, Fla. (Chapman Field)
 Millington, Tenn. (Park Field)
 Merriam, Va.
 Mount Clemens, Mich. (Selfridge Field)
 New York, N.Y. (Hobbs Field)
 "In process of abandonment"
 Air Service Schools
 Ford Island, Caribbean Field.
 School of Aerial Photography, Langley Field.
 Engineering School, McCook Field.
 Field Officers School, Langley Field.

France

Army Air Service (Aéronautique Militaire)

Fighting strength: 18 aviation legions (180 squadrons)
 2 balloon regiments (35 companies)
 (No airships.)

Organization: The tactical unit of the aviation arm is the squadron (squadron), consisting of a headquarters and of three sections (light) of four airplanes each. Four squadrons form a group, and three groups form a regiment. The French aviation squadrons consist of 12 squadrons, and are comparable to the Wings of the U. S. Army Air Service, which are however only a war time provision.

The tactical unit of the balloon arm is the company. Four companies form a battalion, and three battalions form a regiment.

The organization of the anti-aircraft regiments is not fully known, although they are understood to consist of three groups of four batteries each, with four anti-aircraft guns per battery. The French anti-aircraft regiments would thus comprise 48 guns.

The French Army Air Service does not operate any airships.

Appropriation

	1931	1932*
Army Air Service	\$724,000,000	\$724,000,000
Naval Air Service	\$33,000,000	\$33,000,000
Civil Air Transport	\$737,000,000	\$737,000,000

*Revised from Estimates.

Summary of French Air Troops

AIR REGIMENTS

1st Air Brigade Hdq. in Paris.

34th Avn. Regt.

2d Air Brigade Hdq. in Paris.

35th Avn. Regt.

3d Air Brigade Hdq. in Paris.

36th Avn. Regt.

4th Air Brigade Hdq. in Paris.

37th Avn. Regt.

5th Air Brigade Hdq. in Paris.

38th Avn. Regt.

Great Britain

Royal Air Force

Fighting strength: 32 aviation squadrons.
 4 balloon companies.
 (No airships.)

Personnel: 25,000 officers and 25,000 men.

Organization: The tactical unit of the aviation arm is the squadron, consisting of a headquarters and of three flights of six airplanes each. There is more squadron force in wing (the American and French group), and those or more wings form a group (the American wing, or the French regiment).

No information is available regarding the organization and number of balloon companies.

Baldern School, Ross Field
 Baldern School, Pt. Omaha
 Academy Private School, Langley Field.
 A. S. Mechanics School, Grange Field.
 Engineering Division
 McCook Field, Dayton, Ohio

U. S. Naval Aviation

The only permanent air formations of the U. S. Naval Air Service are the Atlantic Fleet Air Force and the Pacific Fleet Air Force, each of which consists of two or three NC squadrons and twelve F-3 biplanes.

U. S. Marine Corps Aviation

The U. S. Marine Corps maintains about a dozen aviation squadrons for service on ships in connection with operations by the U. S. Navy. Several of these squadrons are in Italy and in Santa Domingo.

1st Air Brigade Hdq. in Paris.

34th Avn. Regt.

2d Air Brigade Hdq. in Paris.

35th Avn. Regt.

AVIATION REGIMENTS

1st (Personnel)	Thiersville (Bas-Rhin)
2d (Personnel)	Strasbourg (Bas-Rhin)
3d (Personnel)	Châteauneuf (Indre)
11th (Obs. Reconnaissance)	Metz (Moselle)
12th (Obs. Reconnaissance)	Nancy (Meurthe-et-Moselle)
13th (Obs. Reconnaissance)	Langres (Haute-Marne)
14th (Obs. Reconnaissance)	Toul (Meuse)
15th (Obs. Reconnaissance)	Reims (Marne)
16th (Obs. Reconnaissance)	Amiens (Somme)
17th (Obs. Reconnaissance)	Compiègne (Aisne)
18th (Obs. Reconnaissance)	Soissons (Aisne)
19th (Obs. Reconnaissance)	Laon (Aisne)
20th (Obs. Reconnaissance)	Arras (Nord)
21st (Obs. Reconnaissance)	Amiens (Somme)
22nd (Obs. Reconnaissance)	Compiègne (Aisne)
23rd (Obs. Reconnaissance)	Soissons (Aisne)
24th (Obs. Reconnaissance)	Laon (Aisne)
25th (Obs. Reconnaissance)	Arras (Nord)
26th (Obs. Reconnaissance)	Amiens (Somme)
27th (Obs. Reconnaissance)	Compiègne (Aisne)
28th (Obs. Reconnaissance)	Soissons (Aisne)
29th (Obs. Reconnaissance)	Laon (Aisne)
30th (Obs. Reconnaissance)	Arras (Nord)
31st (Obs. Reconnaissance)	Amiens (Somme)
32nd (Obs. Reconnaissance)	Compiègne (Aisne)
33rd (Obs. Reconnaissance)	Soissons (Aisne)
34th (Obs. Reconnaissance)	Laon (Aisne)
35th (Obs. Reconnaissance)	Arras (Nord)
36th (Obs. Reconnaissance)	Amiens (Somme)
37th (Obs. Reconnaissance)	Compiègne (Aisne)
38th (Obs. Reconnaissance)	Soissons (Aisne)
39th (Obs. Reconnaissance)	Laon (Aisne)
40th (Obs. Reconnaissance)	Arras (Nord)
41st (Obs. Reconnaissance)	Amiens (Somme)
42nd (Obs. Reconnaissance)	Compiègne (Aisne)
43rd (Obs. Reconnaissance)	Soissons (Aisne)
44th (Obs. Reconnaissance)	Laon (Aisne)
45th (Obs. Reconnaissance)	Arras (Nord)
46th (Obs. Reconnaissance)	Amiens (Somme)
47th (Obs. Reconnaissance)	Compiègne (Aisne)
48th (Obs. Reconnaissance)	Soissons (Aisne)
49th (Obs. Reconnaissance)	Laon (Aisne)
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57th (Obs. Reconnaissance)	Compiègne (Aisne)
58th (Obs. Reconnaissance)	Soissons (Aisne)
59th (Obs. Reconnaissance)	Laon (Aisne)
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92nd (Obs. Reconnaissance)	Compiègne (Aisne)
93rd (Obs. Reconnaissance)	Soissons (Aisne)
94th (Obs. Reconnaissance)	Laon (Aisne)
95th (Obs. Reconnaissance)	Arras (Nord)
96th (Obs. Reconnaissance)	Amiens (Somme)
97th (Obs. Reconnaissance)	Compiègne (Aisne)
98th (Obs. Reconnaissance)	Soissons (Aisne)
99th (Obs. Reconnaissance)	Laon (Aisne)
100th (Obs. Reconnaissance)	Arras (Nord)

BALLOON REGIMENTS

1st	Battalion No. 1	Epinal (Vosges)
2d	Battalion No. 2	Compiègne (Aisne)
3d	Battalion No. 3	Paris
4th	Battalion No. 4	Nancy (Meurthe-et-Moselle)
5th	Battalion No. 5	Toul (Meuse)
6th	Battalion No. 6	Reims (Marne)
7th	Battalion No. 7	Amiens (Somme)
8th	Battalion No. 8	Compiègne (Aisne)
9th	Battalion No. 9	Soissons (Aisne)
10th	Battalion No. 10	Laon (Aisne)
11th	Battalion No. 11	Arras (Nord)
12th	Battalion No. 12	Amiens (Somme)
13th	Battalion No. 13	Compiègne (Aisne)
14th	Battalion No. 14	Soissons (Aisne)
15th	Battalion No. 15	Laon (Aisne)
16th	Battalion No. 16	Arras (Nord)
17th	Battalion No. 17	Amiens (Somme)
18th	Battalion No. 18	Compiègne (Aisne)
19th	Battalion No. 19	Soissons (Aisne)
20th	Battalion No. 20	Laon (Aisne)
21st	Battalion No. 21	Arras (Nord)
22nd	Battalion No. 22	Amiens (Somme)
23rd	Battalion No. 23	Compiègne (Aisne)
24th	Battalion No. 24	Soissons (Aisne)
25th	Battalion No. 25	Laon (Aisne)
26th	Battalion No. 26	Arras (Nord)
27th	Battalion No. 27	Amiens (Somme)
28th	Battalion No. 28	Compiègne (Aisne)
29th	Battalion No. 29	Soissons (Aisne)
30th	Battalion No. 30	Laon (Aisne)
31st	Battalion No. 31	Arras (Nord)
32nd	Battalion No. 32	Amiens (Somme)
33rd	Battalion No. 33	Compiègne (Aisne)
34th	Battalion No. 34	Soissons (Aisne)
35th	Battalion No. 35	Laon (Aisne)
36th	Battalion No. 36	Arras (Nord)
37th	Battalion No. 37	Amiens (Somme)
38th	Battalion No. 38	Compiègne (Aisne)
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49th	Battalion No. 49	Soissons (Aisne)
50th	Battalion No. 50	Laon (Aisne)
51st	Battalion No. 51	Arras (Nord)
52nd	Battalion No. 52	Amiens (Somme)
53rd	Battalion No. 53	Compiègne (Aisne)
54th	Battalion No. 54	Soissons (Aisne)
55th	Battalion No. 55	Laon (Aisne)
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60th	Battalion No. 60	Laon (Aisne)
61st	Battalion No. 61	Arras (Nord)
62nd	Battalion No. 62	Amiens (Somme)
63rd	Battalion No. 63	Compiègne (Aisne)
64th	Battalion No. 64	Soissons (Aisne)
65th	Battalion No. 65	Laon (Aisne)
66th	Battalion No. 66	Arras (Nord)
67th	Battalion No. 67	Amiens (Somme)
68th	Battalion No. 68	Compiègne (Aisne)
69th	Battalion No. 69	Soissons (Aisne)
70th	Battalion No. 70	Laon (Aisne)
71st	Battalion No. 71	Arras (Nord)
72nd	Battalion No. 72	Amiens (Somme)
73rd	Battalion No. 73	Compiègne (Aisne)
74th	Battalion No. 74	Soissons (Aisne)
75th	Battalion No. 75	Laon (Aisne)
76th	Battalion No. 76	Arras (Nord)
77th	Battalion No. 77	Amiens (Somme)
78th	Battalion No. 78	Compiègne (Aisne)
79th	Battalion No. 79	Soissons (Aisne)
80th	Battalion No. 80	Laon (Aisne)
81st	Battalion No. 81	Arras (Nord)
82nd	Battalion No. 82	Amiens (Somme)
83rd	Battalion No. 83	Compiègne (Aisne)
84th	Battalion No. 84	Soissons (Aisne)
85th	Battalion No. 85	Laon (Aisne)
86th	Battalion No. 86	Arras (Nord)
87th	Battalion No. 87	Amiens (Somme)
88th	Battalion No. 88	Compiègne (Aisne)
89th	Battalion No. 89	Soissons (Aisne)
90th	Battalion No. 90	Laon (Aisne)
91st	Battalion No. 91	Arras (Nord)
92nd	Battalion No. 92	Amiens (Somme)
93rd	Battalion No. 93	Compiègne (Aisne)
94th	Battalion No. 94	Soissons (Aisne)
95th	Battalion No. 95	Laon (Aisne)
96th	Battalion No. 96	Arras (Nord)
97th	Battalion No. 97	Amiens (Somme)
98th	Battalion No. 98	Compiègne (Aisne)
99th	Battalion No. 99	Soissons (Aisne)
100th	Battalion No. 100	Laon (Aisne)

ANTI-AIRCRAFT REGIMENTS

1st	Paris
2d	Strasbourg
3d	Toul
4th	Reims
5th	Amiens
6th	Compiègne
7th	Soissons
8th	Laon
9th	Arras
10th	Amiens
11th	Compiègne
12th	Soissons
13th	Laon
14th	Arras
15th	Amiens
16th	Compiègne
17th	Soissons
18th	Laon
19th	Arras
20th	Amiens
21st	Compiègne
22nd	Soissons
23rd	Laon
24th	Arras
25th	Amiens
26th	Compiègne
27th	Soissons
28th	Laon
29th	Arras
30th	Amiens
31st	Compiègne
32nd	Soissons
33rd	Laon
34th	Arras
35th	Amiens
36th	Compiègne
37th	Soissons
38th	Laon
39th	Arras
40th	Amiens
41st	Compiègne
42nd	Soissons
43rd	Laon
44th	Arras
45th	Amiens
46th	Compiègne
47th	Soissons
48th	Laon
49th	Arras
50th	Amiens
51st	Compiègne
52nd	Soissons
53rd	Laon
54th	Arras
55th	Amiens
56th	Compiègne
57th	Soissons
58th	Laon
59th	Arras
60th	Amiens
61st	Compiègne
62nd	Soissons
63rd	Laon
64th	Arras
65th	Amiens
66th	Compiègne
67th	Soissons
68th	Laon
69th	Arras
70th	Amiens
71st	Compiègne
72nd	Soissons
73rd	Laon
74th	Arras
75th	Amiens
76th	Compiègne
77th	Soissons
78th	Laon
79th	Arras
80th	Amiens
81st	Compiègne
82nd	Soissons
83rd	Laon
84th	Arras
85th	Amiens
86th	Compiègne
87th	Soissons
88th	Laon
89th	Arras
90th	Amiens
91st	Compiègne
92nd	Soissons
93rd	Laon
94th	Arras
95th	Amiens
96th	Compiègne
97th	Soissons
98th	Laon
99th	Arras
100th	Amiens

GROUND ESTABLISHMENTS

Central Flying School: Tours (Aéronautique Militaire)
 Factory and Headquarters: Clermont (Aéronautique Militaire)
 School of Superiors (Officers and Engineers): Bordeaux
 Army Air Park Group: Dijon
 Central Aircraft Establishment: Chartres
 Balloon and Airship Establishments: Châteauneuf (Indre).

Great Britain

Appropriation

	1930-31	1931-32
Royal Air Force	£11,992,250	£19,013,400
Civil Air Transport		£1,000,000

Summary of British Air Troops

Note.—The R. A. F. squadrons stationed in Great Britain and Ireland are approximately divided into four groups, two of which are stationed in the Island Area, and two (Nos. 39 and 40) in the Coastal Area. The latter Group are formed of airplane squadrons. As no reliable information is available on said organizations, the squadrons known to exist, with their stations, so far as known, are given below.

INLAND AREA

No. 7 Sq.	Penryn.
No. 8 Sq.	London.
No. 16 Sq.	Station unknown.
No. 18 Sq.	Hawking.
No. 20 Sq.	Spottiswoode.

COASTAL AREA

No. 21 Sq.	London.
No. 22 Sq.	Station unknown.
No. 23 Sq.	Dunstable.
No. 24 Sq.	London



A CURTISS ORIOLE (50 H.P. OX-5)—THE TYPE WHICH TRAFFICED WITH KANSAS CITY AND AT O'HARE FIELD NEAR CHICAGO

Suddenly broken from a nearby town rushed to the scene and some car dropped a match into the worked airplane. The machine was completely burned.

Harley explained his gasoline pump had failed to function and that when he attempted to change to his emergency supply, the switch stuck. He was down to the ground.

It appears that the pump which broke down was not the standard pump supplied by the Wright Aeroplane Corp. on their Wright engines, but one produced by McCook Field.

Almost at the same time Harry Ede of Chicago, parachute jumper, was drowned when his parachute slipped in the Madison River. He could not swim and sank before the only boat in sight could be hooked from its hook and chain fastenings and go to his rescue.

Next year's Pulitzer Race is to be flown at Detroit. The flying club of that city was to have held the race this year, but gave it up because it received no assistance from the army, so the army and were fearful it would not get enough entries to make the event interesting.

Some Notes on the Machines

In the trials before the machines were shipped west the Curtiss-Cowling engine showed itself was not better equipped or more at the Curtiss-Sims airplane. That Bert Anson in the Curtiss-Navy was the race in the opinion of observers was due to the fact that Clarence Campbell had never flown the triplane until he stepped into the cockpit for the race and consequently flew more cautiously than Anson. Both of these

ships have made straightaway speeds in excess of 300 m.p.h. when flown on Long Island before the race by Bert Anson. The Curtiss Company admits its standard official speed track over an accurately measured course in the next feature is an effort to exceed the world's straightaway speed record.

An outstanding feature of the speed events in Kansas City and Omaha was the magnificent showings of the Curtiss engine. The C-6 in an Oriole piloted by Casey Jones was the Junior Legion Derby at the rate of 372.3 m.p.h. The K-12 in the SVA Bellini piloted by Lloyd Hamilton was the Legion Derby at a C-10 (James Cover) in the Navy Curtiss before piloted by Bert Anson was the Pulitzer Race with an average speed of 176.7 m.p.h., a world's record for speed in competition over a circular course. Keweenaw's average speed in the Derwent race, the new French speed class, having been 272.1 m.p.h. Then Clarence Campbell in the Curtiss-Cowling triplane with its C-13 engine secured second place in the Pulitzer race with a speed of 170.75 m.p.h., while finished in the SVA Bellini with the K-12 engine secured fourth place.

The accessories used on the Curtiss engine in the speed events at Omaha and Kansas City were:

Machine	Engine	Accessories	Speed	Time	Comments
Curtiss	C-6	Standard	372.3	1:00	1st place
SVA	C-12	Standard	340.0	1:05	2nd place
Curtiss	C-13	Standard	340.0	1:05	3rd place
Curtiss	C-14	Standard	340.0	1:05	4th place

The Oriole piloted by Casey Jones which won the Junior American Legion Derby at Kansas City was flown by pilot



THE LOWMAN TWO-SEATER, WITH WINGS FOLDED, WHICH WON THE AEROBATIC CONTEST AT OMAHA

Jones from Mansfield, N. Y., and after competing at Kansas City flew in the International Aero Congress at Omaha where it participated in several of the events. From the time it left Memphis until the completion of the month the C-6 engine required no stoppage whatever. The performance of the K-12 in the Bellini was equally noteworthy.

On the morning of Nov. 2 the Bellini was the Legion Derby at Kansas City, on the 3rd it flew to Omaha and in the afternoon of the same day competed in the Pulitzer Race managing fourth place, and finishing in perfect condition.

Free For-All Race, Nov. 4

On the day after the Pulitzer Trophy race, Nov. 4, two free-for-all races were held over a distance of 50 miles, the course being about 36 miles long, which the contestants had to cover three times. One of these races was limited to C-6 and K-6 Orioles, "Hino Jansons", Lloyd Hamilton, C-6 and K-6 Standard, and in general to machines with a high speed of from 75 to 100 m.p.h. The other race, over the same course and distance, was restricted to Jespers, Canards, OX-Queens, OX-Standard, and similar machines, with a high speed of from 60 to 75 m.p.h.

The "C-6 or K-6" race was won by C. S. Jones in a C-6 Oriole at 55 m.p.h. at the same machine and the same pilot who won the American Legion Junior Derby at Kansas City N. O. Thompson, on a K-6 Oriole, finished second in 57 m.p.h. and R. S. Miller, also on a K-6 Oriole, was third in 59 m.p.h. at 57 m.p.h.

The "60-75 m.p.h." race was won by F. M. Donahue in an OX-Queen at 69 m.p.h. and C. R. Jones, also on an OX-Queen, was second in 67 m.p.h. and Harry Hall, on a Longhorn K-6, finished third in 72 m.p.h. at 65 m.p.h.

It was so seen that altogether it was a walk-over for the Curtiss airplanes.

The Lowman Efficiency Trophy Contest

Nov. 4, the last day of the Omaha event witnessed the contest for the annual efficiency trophy donated by John St. Louis. The conditions governing this contest were laid down by the donor at the trophy in a letter to the Aero Club of America which was reproduced in our issue for Oct. 24, 1921. According to these stipulations the winning machine would be the one which demonstrated the highest efficiency factor (E) according to the formula:

$$E = \frac{W - T}{G} \times S$$

In which W is the total weight of the airplane bearing the ground, F is the weight of the airplane minus ground, all fuel, water, G is the number of gallons of gasoline consumed in flight, and S is the average speed in miles per hour made over the course.

The Contest Committee of Aero Club of Omaha, under whose auspices the contest was held, further specified that the

entries must have a maximum air speed of 60 m.p.h., carry a payload of at least 600 lb., and have a safety factor of 5 in the case of monoplanes, and of 4 in the case of biplanes, as loaded for the contest. The course of the contest, of an approximate length of 250 miles, was laid out in the form of a round trip from Alton-Bee Field, Omaha, to Des Moines, Iowa, and return. After crossing the Nebraskan line, the contestants were to continue on their course, and finish in an altitude of 5000 ft. marked by a kite balloon, after which they were to return to the field and land in the space allotted to them.

The entries received for this contest were as follows:

1. Lloyd Hamilton (E. M. Lott, Co.)
2. J. L. L. (J. L. L. Aero Corp.)
3. Anson (Anson Aero Import Corp.)
4. OX-Queen (Curtiss Aeroplane & Motor Corp.)
1. Anson (Anson Aero Import Corp.)
2. OX-Queen (Curtiss Aeroplane & Motor Corp.)
3. OX-Queen (Curtiss Aeroplane & Motor Corp.)
4. OX-Queen (Curtiss Aeroplane & Motor Corp.)
5. OX-Queen (Curtiss Aeroplane & Motor Corp.)
6. OX-Queen (Curtiss Aeroplane & Motor Corp.)
7. OX-Queen (Curtiss Aeroplane & Motor Corp.)
8. OX-Queen (Curtiss Aeroplane & Motor Corp.)
9. OX-Queen (Curtiss Aeroplane & Motor Corp.)
10. OX-Queen (Curtiss Aeroplane & Motor Corp.)

The contest for the Lowman Trophy was won by Earl F. White in the SVA-9 (120 hp. SVA) which was entered by C. E. Wrightman of Tulsa, Okla., distributor of Ansoncraft at Tulsa, Oklahoma, and Missouri.

The original announcement issued by the Contest Committee invited the machine with a score of 4748 points, for having carried a total useful load of 1390 lb. at an average speed of 96.17 m.p.h., with a fuel consumption of 23.32 gal. As a result of a protest filed by Mr. Larson, owner of the trophy and interest in the contest, on the ground that the specific gravity of the gasoline used by the SVA-9 was greater than that used by the two Lowman entries which were given second and third place with 4430 and 4238 points, respectively, the Contest Committee ordered a re-checking of all figures. As a result of this revision the number of points allotted to the three machines was somewhat modified, for the higher specific gravity of the gasoline used by the SVA-9 gave that machine a greater useful load, although at the same time it also increased its fuel consumption. The revision cannot give the following standings:

- 1st. Earl F. White in SVA-9 (4471 points).
- 2nd. Mrs. Donahue in J. L. L. (4438 points).
- 3rd. Eddie Stinson in J. L. L. (4238 points).

The original standings showed the J. L. L. which finished second with having carried 1690 lb. of useful load at an average speed of 97.25 m.p.h. with a fuel consumption of 30 gal., while the J. L. L. piloted by Eddie Stinson was given credit for having carried a useful load of 1620 lb. at an average speed of 97.66 m.p.h., with a fuel consumption of 37.5 gal. The revised



SVA-9 TWO-SEATER (120 H.P. SVA)—THE TYPE WHICH WON THE LOWMAN AERIAL EFFICIENCY TROPHY AT OMAHA, AND EFFICIENCY CONTEST FOR SPORT AIRPLANES AT KANSAS CITY

available gasoline with low end point, and the results of this test from the standpoint of the lubricating oil, could be wholly satisfactory as the engine and gear machine. Thus all effort to secure the most suitable lubricating oil for the aeromarine engine could be wasted by using an unsuitable gasoline. Hence the importance of using the right kind of gasoline in all aeromarine engines.

The aeromarine engine can afford to take a chance on poor fuel reducing the power or on the stalling of low motor, because the most it can intend to lose is one horsepower. The aeromarine pilot, for any one of the above mentioned faults, caused by poor or unsuitable gasoline, may be the direct cause of injury or loss to his aircraft, and sometimes injury or loss of his life.

An Instructive Flight

The writer recently flew on board the Aeromarine flying motor boat from New Orleans to New Orleans to observe the results of using high and low end gasoline in Liberty engines.

For reasons outlined above it is most expedient to use gasoline that closely conforms in every way to the U. S. government specifications for domestic aviation gasoline—W.D. No. 2-B. But until the federal, state or municipal governments, either singly or combined, establish throughout the United States a network of standard landing fields or air ports, equipped with standard gasoline, the pilot, flying high and low end oil, it will be necessary, when making long overland or overwater flights, to use ordinary aeromarine gasoline of varying qualities.

From Miami, Fla. we were able to get suitable high end gasoline at nearly all stops on the trip from Havana, Cuba, to Chicago but in the northern states it was not available. Aeromarine gasoline procurable in the South is of mediocre quality and the use of such gasoline in the engine and gear machine, above the effects of very low grade gasoline on the engine and also on the lubricating oil.

Until reaching St. Louis it was possible to get a grade of gasoline that is sold in drums for storage and use. This had high gravity and low end point. This gave very good satisfaction, maintaining the proper revolutions on the motor without overheating, but it was not possible to get this grade of gasoline at the other stops. The gasoline got poorer and poorer and the weather or air temperature got better and better. The engine had to operate under the most unfavorable conditions imaginable but this was not the worst. The engine and gear machine used low grade Lakeview Oil stood up but was to study the effects of different grades of gasoline on the engine as well as the effects of low grade gasoline on the cylinder lubrication. The oil did not seem to give any trouble, but, as we did not add oil for several flying hours the effects of using unsuitable gasoline, for the high, good gasoline had come up through the battery, poor gasoline and "contaminated this part" as it were.

Results of Poor Gasoline

By the time we got to Helena, Ark., the air temperature had climbed to 140 deg. F. and we began to see the effects of the low gravity, high gravity and high end point gasoline. The engine had revved and revolved slightly. At Helena it occurred as if all who wanted to ride in the States Marine thought of it at the same time and as the Commander did not wish to disappoint prospective passengers he made some fuel tank swaps in a little over two hours. Reversing the engine had been through previous experiences using regular aviation gasoline and another interesting oil, observation was accordingly kept at Helena.

Exiting off in a 15000-ft. gasoline in tank leader on the engine thus taking off on lead, for the drag of the water on the hull is so much greater than the drag of the air on the land speed boat. What was just the time when we needed good high end gasoline, but we had had none since leaving Alton, Ill. The engine got better after each swap, the revolutions fell, the hull in the water was no longer so out of balance.

The water temperature rose to the 190 mark and on the last two hops the pointer stood around 215. The effect

of these breakdowns "batty" mode", which merely spun but gave no power, stand out in the recollection of the engine and the effect of their slow burning resulted in their slowly, slowly heating, which warped the exhaust valves on these cylinders. But it was interesting to note that through all this the oil temperature only fell 4 ft. before the mixture and the oil temperature advanced only 3 deg. when the average, immediately after shutting off the engine the last time, they landed as easily as when an aircraft engine had not been used. The lubricating oil did not get too hot and did not contribute to the excessive heat, which was plainly seen to have been caused by the heavy use.

That same lubricating oil from those results had been of a consistency to heavy loads, and the other two engines, however, but it never was demonstrated them carrying under actual working conditions that that afternoon at Helena and on the better days that were to follow. It showed that very low of the heavy end put by the field and around the piston rings and kept on by the lubricating oil and away from the overlying pistons. The oil pressure would have dropped to the danger point if it had not been for this fact. Grease and Vaseline, then, were pushed by flying but after taking off and not further loading the engine by shaking for altitude. The best grease obtainable got worse, and the weather better, and a couple of the water pistons on the cylinders started leaking. The water pistons on the engine had been caused by low gravity, high initial and high end point gasoline. At Tulsa River gasoline which was equal to the Air Service specifications was procurable.

Effect of Good Gasoline

During these last few hops the heat engine would run was 1550 r.p.m. The first hop at Baton Rouge after flying up with this suitable gasoline and without any report to the engine, its revolutions rose to 1500. The oil pressure went up to 2 lb. above the average, the oil temperature went down to normal, and the water temperature dropped off 20 deg. It was also possible to do much more with the engine. The 20 deg. of the log book were analyzed at New Orleans and they showed that the States Marine, during the four weeks it had been using Lakeview Aviation Oil, had consumed only 16 per cent of the quantity it had consumed with the low gravity and low end gasoline. The use of low gravity, high end point gasoline was the cause of the overheating and the attendant work, which would not have been associated had it been possible to secure regular aviation gasoline. The engine was given a rest that there is an upper and for some ships and chances of accidents to induce action of gasoline revolution to carry a supply of aviation gasoline and lubricating oil. These same engines should also look to have all present landing fields and airports supplied with this same quality of suitable grade and quality. If the federal, state, city or town governments do not soon establish standard landing fields, the time will come before they realize it when the aeromarine landing fields will be in the same position as the locality which does not have a railroad running through it.

A Letter

Editor, AVIATION AND AERONAUTICS JOURNAL
A copy of the Sept. 15 issue of your journal has just come into our hands and we have examined with considerable interest the reprint of the proposed aeromarine Safety Code. As we understand it, this code is being developed by the National Committee on Aeromarine Safety Code which was recently organized under the rules of the American Engineers and Architects Committee and the Bureau of Standards and the Society of Automotive Engineers are the sponsors for this code.

In your letter of the representatives who attended this morning, Theodore E. P. Warner was named as a representative of the Society of Automotive Engineers.

C. R. LA PAKE

Secretary, Standards and Technical Committee, A.S.M.E.

Examination of Navy Reserve Officers

The following memorandum concerning examinations of reserve and temporary officers for commissions in the line of the U. S. Navy, which was prepared by the Bureau of Aeronautics, Navy Department, is of interest.

1. The following tabulation shows in chronological order the sequence of events required with the examination and recommendations for commission of certain reserve and temporary officers for commission in the line of the Navy under Act of June 4, 1920:

August, 1919—Director of Naval Aviation sent letter to Commanding Officers of all Air Stations, Commanders Air Force, stating that examination would be held and directed Commanding Officers to send classes of candidates.

June 4, 1920—Congress passed Act H.R. 12168, authorizing transfer of temporary and reserve officers to permanent rank or grade for which they might be found qualified.

August, 1920—Bureau of Navigation sent a circular letter to the service station examinations to be held for reserve and temporary officers would be held starting May 16, 1921.

May 15, 1921—Examinations started.
Oct. 5, 1921—Bureau of Navigation published a list of temporary and reserve officers found qualified for permanent commissions, as follows:

Recommendation of Examining Board

The following was the recommendation of the Examining Board:	
Number who took the examination	2021
Number who failed to finish	21
Number considered for commissions	1600
Number recommended for commissions	921
Number recommended for Class 1, 2, 3, 4	200
Number not recommended	320
Percentage recommended for commissions	100%
Percentage recommended for Class 1, 2, 3, 4	17.5 per cent
W. grade	22.7 per cent
Percentage not recommended	22.5 per cent
Total	1000
Number of temporarys who took the examination	1182
No. of Reserve (Class 1, 2, 3, 4) took examination	136
No. of Reserve (Class 5—Flying Corps) took examination	344
Total	1650
No. of Temporarys rec. for commission	894—54.2 per cent
No. of Reserve (Class 1, 2, 3, 4) recommended	85—63.9 per cent
No. of Reserve (Class 5—Flying Corps) recommended	332—96.5 per cent

RESERVE 5. WING

REAR ADMIRAL T. S. N., President

DENALD C. BERRY,

REAR ADMIRAL, U. S. N., Member

REAR ADMIRAL, U. S. N., Member

Captain, U. S. N., Member

2. From the above it is to be noted that the number of officers of Class 5 Reserve (Aviation officers) who were recommended for commission in the line of the Navy is higher than any other group of officers taking these examinations.

Examinations are held were competitive in nature, similar to examinations held for entrance to the Naval Academy.

The examinations were held at the same time and date all over the world, and examination papers were forwarded to Washington by mail, for selection by the Naval Examining Board. Candidates who were unable to be present at the examinations at the time and date named, due to sickness or other cause, were not permitted to take another examination, in view of the fact that the examination was of a competitive nature.

4. The Act of June 4, 1920 (H.R. 12168) authorized the admission to the line of the Regular Navy, on the recommendation of the Examining Board, of reserve and temporary officers of the Navy, who were found qualified, of 2200 officers, 200 of whom could be aviation officers (Class 5).

5. Examination was given in all predominate subjects of which a knowledge is required in the officers of the Navy. The law requires, very properly, that all officers, including aviation officers, should qualify in regular line subjects. It must be understood that a Naval Aviator, in addition to being able to fly, must have a thorough knowledge of navigation, a sufficient knowledge of seamanship, a thorough knowledge of gunnery and weapons used in airplanes, bombs, Naval cannons, spelling and a certain amount of international law in connection with the duties of a Naval Aviator.

It should understand a certain amount of electricity in order to communicate, as well as to fly the safety and operation of his plane or balloon. These subjects are necessary, owing to the fact that the regular Army of the United States is required to regular duty as line officers. Class 5 officers were given the special privilege of covering one of the following subjects—chemistry, static engineering, mechanics and gunnery, hydrography, and weapons used in airplanes. It is a notable fact that quite a number of the class 5 officers did not elect to take these subjects—aviation—and also that a number of those failed to pass in this subject. It will be noted that eleven of the half groups slipped from the line since they gave that the examinations were to be held and the time of holding the examinations, so that they had ample time to prepare themselves. It is true that the boarding examinations took place just before the examinations, but had these officers taken advantage of opportunities to study, it is believed that usually all of the class 5 officers would have passed. At the stations where they were completed in study, nearly all passed. At Alton, Ill., 95 per cent, at the majority and temporarys passed. At San Diego 93 per cent passed, and at Pensacola 10 per cent passed.

8. The Aviation questions were prepared by qualified stations, and the papers were graded by aviation. Great weight was given by the Examining Board to reports on the part of the stations of the Examining Board was most liberal.

7. Subjects covered by the examination: Static engineering, mechanics and gunnery, hydrography, international law, military law, electricity, navigation, Navy regulations.

8. The following was the result of the Aeromarine Examination:

Of Temporarys 592 per cent passed
Of Reserve 63.9 per cent passed
Class 1, 2, 3, 4 63.9 per cent passed
Class 5 (Aviators) 96.5 per cent passed
Of 264 Class 5 Aviators

39 took Law examinations voluntarily meeting Aero-nautics examination.

200 took Aeromarine.

Of 200 Aviators who took Aeromarine.

Of 200 Aviators failed in Aeromarine their own specialty.

Of 13 Temporarys who took Aeromarine.

17 Temporarys failed in Aeromarine.

Note: The questions in Aeromarine were made up by officers in Bureau of Aeronautics and were marked by three qualified officers.

The officers who, through no fault of their own, were recommended from taking the examinations will be given an opportunity to take an examination.

Foreign Aeronautical News

Brazil

The *Departamento de Meteorologia e Aeronautica* of the Brazilian Department of Aeronautics has been divided into two separate services, that of meteorology and the National Observatory. The meteorological service will continue the standard work, established in 1916, standardizing the methods of all meteorological services in the country and publishing all available data for the last 30 years. It will also establish a forecast service for central and southern Brazil, an aerological service for aviation and for the general progress of meteorological science, including tide and pilot balloon stations; a special coast service for navigation; agricultural and marine meteorology services; a special service of seas and floods; and the usual meteorological in every department of meteorology, which may possibly lead to longer ranges in forecasting weather.

An important aerial transport company has been formed in Rio Grande do Sul for regular passenger and freight service between that city and other points in the various neighboring states. The nucleus are of French manufacture.

England

Four British airplanes recently left London for Madrid for delivery to the Spanish military authorities for use in Morocco against the Moors. They were assembled at the aircraft factory at Croydon by the Aircraft Design Co. Three of the airplanes are Bristol Fighters, equipped with 200 hp. Hispano-Suiza engines, with the other is a DH4 Daylight Bomber. This is the second batch of British fighting airplanes sent to Spain and delivered to the Spanish Military Air Service.

The rate for Civil Aviation for 1931-32 amounts to £1,000,000 of the about £425,000 is all allocated for the maintenance of airplanes, salaries and wages, buildings, lands, purchase of experimental aircraft, etc., for the development of civil aviation—then air craft.

Roumania

Two FVA 120 hp. planes have been imported from Italy and presented to the Roumanian government by the University Faculties Club and the Sports Club. There are now seven planes in the government service and one more is purchased by the Chinese colony. The National Government has contracted with an Italian manufacturer to furnish 12 airplanes with the equipment for repair shops. The Bank of Roumania and the Commercial and Agricultural Bank have each contributed 15,000 acres toward the Government aviation fund across the river from Orsova. The total contribution for the field exceeds \$4,000,000 (approximately \$25,000).

Germany

The Bavarian authorities are making arrangements to establish a first class airport at Munich. Discussions between the Federal States have taken place in the subject of Munich's favorable situation in relation to the economical advantage of the Federal Air. An air service has been established between Dusseldorf and Riga, linking up with the service from Dusseldorf to Germany from there a week.

Powerful groups have been formed in Germany for the development of aerial mail. These groups are seeking the cooperation of foreign companies in Sweden, Denmark, Holland, England, Italy, Austria and the United States, in order to develop the international air mail of the future. This aerial system, according to the Germans, will be the beginning of an international system which will include France, America, Italy, Spain, Africa, Austria, the East, and also Russia.

India

The Air Board of India, under the Commerce Department, is a purely advisory body without executive functions. As much as funds are available, the Government of India has decided to prepare a trunk air route from Rangoon (via Calcutta and Allahabad) to Bombay. When this route, or a service of it, is completed, orders will be issued for an air mail service over the complete system. Local governments in India have also been empowered to lay out air routes within their own boundaries.

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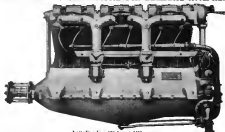
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